

RAILROADS CARRYING THE LOAD

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The American Railroads have done the unbelievable in solving the transportation problems brought about by the war. They have been handicapped by lack of equipment and shortage of new equipment. Yet, cooperating among themselves and with the agent of the government, the Office of Defense Transportation, they have prevented a serious bottleneck which could defeat the war effort with one blow. The railroads are now in a period of prosperity and with this boon the railroads are looking to a brighter future.

Probably the greatest single effort of private enterprise put forth during this war has been that of the American Railroads. They are carrying raw materials to factories and the finished war products to the ports, besides handling regular freight traffic. They are carrying an increase of passenger traffic along with war-time troop trains. A few figures will indicate the magnitude of the job the railroads are doing. At the beginning of 1943 the freight ton miles was thirty three percent (33%) above the previous high peak of 1929. The passenger miles was fifty percent (50%) above the 1929 level and well above the previous peak of 1920.

The most amazing element is the handicap under which the railroads are operating. They have 20% less employees, 20% less freight cars, 20% less locomotive tractive force, and 27% less passenger cars than in 1920. In addition to this they could only expect a 5% increase in freight cars, a 2% increase in locomotives and no increase in passenger cars last year. As a last bit of statistics, the ton miles per hour of freight trains has been increased from 7303 in 1920 to 15,000 now and is still rising. How have the railroads, a business that only ten years ago was on the verge of bankruptcy, accomplished this feat?

One of the first contributions to this rejuvenation was the development of a new type of train, the l.c.l. fast freight. Ten percent of l.c.l. (less than car load lots) had been taken over by trucks which were eyeing ten percent more until such trains as the B. & O's "Merchandiser" were introduced. The "Merchandiser"

runs the 525 miles between New York and Pittsburgh in thirteen hours. It is a freight made up of a passenger engine with up to three dozen cars equipped with steel and not cast iron wheels. All cars contain an assorted shipment and are filled to capacity. Twenty five such cars carry as much as seventy five trucks. This train operates at such speeds that at times it beats the time table of the crack "Capitol Limited", and is so dependable that Pittsburgh stores order supplies in New York one day and advertise their sale that evening for the next day while the goods are still enroute.

Other railroads operate similiar trains such as the Southern Pacific's "Coast Merchandiser", familiarly called the "Zipper", running between San Francisco and Los Angeles. The Illinois Central has the "Merchandise Special" between Chicago and Memphis which beats all passenger schedules except one. Between New York and Buffalo there are four railroads, the Lackawanna, the Erie, the Lehigh and New York Central all operating a fast freight. The New York Central traveling up the Hudson River water level route averages sixty miles per hour between Rensselaer and Harmon using Twentieth Century passenger locomotives.

Remaining on the freight side of the discussion there were three practices of railroad shippers that cut efficiency. They were the under loading of cars, the low average running time of cars, and the sending of empty cars in the opposite direction.

To overcome the first of these, the Association of American Railroads had a campaign to load all cars to capacity. The O. D. T. stepped in and issued Order No. 1, which stated that all l.c.l. cars be loaded with at least six tons which was, later, increased to ten tons. L.c.l. cars had contributed less than two per

cent of the total ton miles but used fourteen percent of box car capacity. The average load for l.c.l. cars was five net tons against twenty six and a half for the average box car. The result of this order was that it took 80,000 cars in September, 1942 to haul the same load that 159,000 cars hauled in September, 1941. This meant an increase of ten percent in the available box car supply.

O.D.T. order No. 18 has to do with the same practice. It requires that all cars must be loaded to visible capacity if loaded light and to the limit if loaded heavy. L.c.l.'s covered in order No. 1 are excepted. This order decreases the percent dead weight of the cars and thus reduces drag. If two cars with a drag of twenty thousand pounds each and a capacity of forty thousand pounds each are only one half loaded the total drag is eighty thousand pounds, fifty percent due to the cars. Now if the total load of forty thousand pounds is put in one car the drag is only sixty thousand pounds and the car contributes only one third instead of one half of the drag.

In the second practice the average car running time was only two hours a day. This is due mainly to switching and off-peak seasons. The off-peak season is now a thing of the past. To further increase the running time, the reduction of unloading time has been spurred by the leveling of demurage charges if not unloaded in a limited time. In Germany a car must be unloaded in an hour or a heavy penalty is leveled. A Port Control system has been introduced to prevent a transport breakdown similar to that in 1918; when 200,000 cars or eight percent of the total were lined up at

ports, and urgent cars had to be lifted from the tangle by wrecking cranes. Now, before export goods can be moved an order has to be obtained from O.D.T. This order is only issued if shipping space on boats or a warehouse for supplying is available. Also required by O.D.T. are daily reports from the divisions of 108 railroads. It takes five or six days for a congestion to develop, and from these reports O.D.T. can see it coming and re-route cars.

The third practise of sending cars back to their own railroad empty has had to be eliminated due to the increase of freight traffic. An example of this was Maine "refers" carrying potatoes to Florida and Florida "refers" carrying fruit to Maine, and then passing each other empty on the way back.

Greater utilization of locomotives also helps to increase capacity. Freight engine use has risen from 96 to 123 miles per day in the last three years while that of passenger locomotives has gone from 183 to 200. An example of one railroad will show how this was done.

The Southern Pacific has stretched their available locomotives by such things as building two lunch houses at a water stop. One is where the front of the freight train stops. The other is located where the end stops. This saves the time of the crew in the caboose from walking twice the length of the train to eat while water is taken on. The Espee has resurrected 179 old-timers from the boneyards to relieve larger engines for mail line duty. Also they have leased locomotives from other roads. It is not unusual to see a Burlington, a Northern Pacific, a Great Northern or even a U.S.A. military engine on the Southern Pacific's tracks. Two of the biggest time-savers are the use of purified water on the

desert and the Lidgerwood. The use of purified water saves an eight hour boiler washout every trip and a several day boiler scrape twice a month. It used to be a week's job to lift the boiler off the frame, to take the wheels off and put them on a lathe to true them. Now by slowly pulling the engine over a Lidgerwood the job is completed in a day.

Until rather recently, railroads were never interested in passenger traffic revenues, freight being the main source of income. A change in attitude has brought about the glamourizing of passenger service. Trains have been painted gaudy colors and given names to mention a few, the "Sunset Limited", "Hiawatha", "Super Chief", "Royal Blue", "Tamiami Champion", and the "Twentieth Century" and "Broadway Limited" being old standbys. Today some of the cars are architectural masterpieces. Twenty eight thousand dollars was the fee for the design of one club car. The modern train is air conditioned, the railroads being excelled only by the movies in this capacity. The trucks are insulated with rubber to reduce noise and dampen vibration. The windows are sealed and double-paned and do not fog. The interior of a modern coach is decorated in subdued colors. There are adjustable individual reclining seats. The lighting is indirect and the lights are put out at ten o'clock. Blue and amber floor lights are maintained to prevent stumbling in the aisles. No longer do brakemen call out stations in the middle of the night and conductors wake you up for tickets. Also on the luxury trains is a stewardess to aid with children and to help the sick and infirm.

At first, streamlining was introduced to prevent air drag. The cars had walls sloping inward toward the top, and the

end car had a long sloping tail. But passengers liked an observation end. The length of the trains and the powerful engines reduced the importance of air resistance, so the tail ends were cut off and the sides built straight up to increase the roominess. Also, the first streamlined trains were composed of articulated units. The trouble in uncoupling such cars and storing them was too much and they were abandoned. The sheathing was formerly continued all the way under the car, but due to difficulties in repair work this was modified. These cars are made of alloys and their decreased weight enables an engine capable of pulling ten standard cars to pull fifteen of the new type.

To go into the new Diesel engines is a subject in itself but a few of its details can be stated. They can start faster, pull up hill faster but not run any faster on the level than a steam engine. The engineer has good visibility through large windshields equipped with wipers and defrosters. The seats are specially designed to prevent fatigue. They are also equipped with a deadman control that immediately stops the train if the engineer removes his foot. The greatest novelty is the new air horns that can be heard for at least five miles. The greatest advantage of the Diesel is its availability. It needs less attention and fewer repairs than the ordinary engine and single units can be fixed even while running. Another advantage is that it needs fewer stops for refueling and water.

All of the forementioned have helped the railroads carry the load but in looking to the future they have taken to research to insure their present prosperity. An outstanding example is that

of the Denver and Rio Grande R. R. which has produced a new type of rail with the web thicker at the top than at the bottom. This type produces less stresses than the older one.

Twice a week in Southern California people go out to see the "Fifty Second Show" as the "Super Chief" goes by. It is a good sign for the railroads when people are again going down to the tracks to see the trains.

B I B L I O G R A P H Y

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